Chem 1075: Spring 2009 CRN 21988 Fundamentals of Chemistry meets on TuTh 12-3:20pm in BH 1140

Instructor: Dr. Beverly Kelley at
a) NWACC Office BH 1472, Phone 479-619-4370 (voice mail available)
b) Email at bkelley@nwacc.edu
c) Home Phone 479-273-5355 and leave message on voice mail

Weather: Severe Weather Phone 479-619-4377 for information on school closings due to winter weather.

Office Hrs:
MW 9:00-10:00am in BH 1472 and MW during class breaks (10:55-11:05, 1:55-2:05, 2:55-3:05 ) in BH 1140
MW 12:00-1:00pm in BH 1472
F 9-10am in BH 1472 / F during class breaks (10:55-11:05 and 11:55-12:05pm) in BH 1140
F 12:50-3:00pm in BH 1472
TuTh 11:00-12:00noon in BH 1472 and TuTh during class breaks (11-11:10, 12-12:10) in BH 1140
TuTh 3:20-4:30pm in BH 1472

Course Description: To provide a one semester overview of the fundamental concepts, laws and principles of chemistry to students with little or no chemistry background.

Learning Outcomes:

- Utilize unit analysis and significant figure rules to solve problems and manipulate data.
- Write correct names and formulas for chemical substances, balance chemical equations, and calculate quantities of chemicals involved utilizing stoichiometry.
- Identify types of chemical reactions and visible evidences of chemical reactions.
- Interpret macroscopic observations from a microscopic particle perspective and apply to:
  - Solids, liquids, and gases at changing temperatures
  - Gas laws and behavior of gases
  - Aqueous chemical reactions
- Utilize periodic properties of atoms to predict bonding (ionic, polar covalent, and nonpolar covalent) in compounds, draw Lewis Structures and predict geometric shapes of molecular compounds.
- Demonstrate ability to prepare, follow instructions, perform laboratory techniques and utilize measuring devices to collect, interpret, and manipulate experimental data.

Materials Needed:

Lab Manual– Introduction to Chemical Principles, A Laboratory Approach by Weiner and Peters
Cheap (less than $10) non-programmable calculator with exp or EE, log and ln functions.
NO personal electronic devices, cell phone calculators, or programmable calculators will be allowed for exams.
Index cards (to make flashcards) are also useful.

Cell Phones: Please be courteous to others and put cell phones and pagers on quiet or vibrating mode during class.

Web Page: www.nwacc.edu, then Current Students, Faculty Webpages, then Kelley, Beverly

Email: Official college communication will occur via My NWACC Connection. Go to www.nwacc.edu and click on My NWACC Connection at the lower left. You will be prompted to enter your user name and password. There is a phone number listed for Student Assistance. All students have been assigned an NWACC email account. Your email will be first initial+lastname@nwacc.edu

Computer access and use is required for this course. If you do not have computer access at home, there are numerous locations on campus where computers are available: Library, Learning Lab, 2nd Floor West Wing (EAST lab).

Assignments:

Homework problems will be assigned from each chapter (problems are dispersed throughout the chapter and are at the end of the chapter). Homework practice is vital for grasping concepts, practicing problem-solving, and enabling you to pass the course. These assignments will NOT be graded. Assigned problems can be found under Learning Goals on my web page. I have found that those students who do the homework are more likely to earn an A in this course.

Attendance: Will be taken using sign-in sheets. It is the responsibility of the student to sign the attendance sheet during every lecture. Attendance does count toward your grade. For each complete lecture attended, 3 points will be earned. Attendance points are prorated if you miss a portion of the lecture. Lack of attendance DOES affect your overall grade!
Lecture Notes: Lecture outlines to match up with the Powerpoint Lectures are currently posted on the Faculty Web Page. It is the students responsibility to print off outline pages and to take notes. If a lecture is missed, it is the student’s responsibility to get a copy of the notes from a classmate.

Powerpoint: Powerpoint lectures are not posted, printed or emailed to encourage class participation.

Safety Quiz: A Safety video, quiz and lecture must be completed before being able to participate in laboratory work. If you miss this in class, it must be completed outside of class to be able to do lab work. The safety video is on reserve in the library along with copies of the safety quiz. It may be viewed in the library if missed in class.

Safety: All safety regulations will be adhered to during this course. NO FOOD or DRINK allowed in the laboratory/classroom after the first week of classes till the last week of classes due to the nature of chemicals being used in the classrooms. There are shelves outside the door for food and drinks to be placed and accessed during breaks. No climbing on tables or chairs. Goggles will be worn at all times when glassware or chemicals are in use in the lab: NO EXCEPTIONS! Be cautious when sitting at the lab stations—I recommend cleaning with disinfectant to remove any chemicals that may have been left from previous classes before placing all of your belongings on the benchtop. Continued violation of safety regulations could result in deduction of attendance points. Extreme continued violation could result in being requested to leave the classroom.

Prob Sets: Take-Home Problem Sets will be assigned throughout the semester for practicing concepts talked about in class. Problem Sets can be found on my web page. The Problem Set will NOT be graded or taken up, but it will be like a “study guide” for the exams.

Practice Quizzes: Practice quizzes will be distributed at appropriate times throughout the semester to accompany the Take-Home Problem Sets. They will NOT be graded or taken up, but will serve as practice for the exams. I will bring keys to the quizzes so you can check your answers in class.

Experiments: The laboratory experience will consist of the following for EACH experiment:

<table>
<thead>
<tr>
<th>Advanced Study Assignment</th>
<th>5pt</th>
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</thead>
<tbody>
<tr>
<td>Report Sheet – data &amp; conclusions</td>
<td>15pt</td>
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</tbody>
</table>

Total points earned each experiment = 20pts

All calculations (including addition or subtraction of masses) must be included on the Report Sheet. Not every blank will be graded on the experiments, only selected calculations and data will be checked. Lab reports and pre-labs must be turned in preferably within 1 week of performing the experiment. Late lab reports will not be accepted after they have been graded and returned to the class.

Grades: Will be determined from the following components:

- 4 best of 5 Exams @ 125pts ea = 500
- 11 Experiments @ 20pts ea = 220
- Attendance days @ 3pts ea =
- Comprehensive Final Exam = 200

Total Possible = 1000

Grades will be determined based upon 90-100% = A, 80-89% = B, 70-79% = C, 60-69% = D, <60% = F

Grades can only be released to a student in person or by NWACC email accounts. Grades cannot be given to a third party without an official release form signed. Grades cannot be given over the phone.

Make-Up Policy: There will be NO make-ups for any experiments. There will be NO make-ups for exams since the lowest exam will be dropped.

Important Dates:

| Jan 12 | First Day of Class |
| Jan 19 | Martin Luther King Holiday (No Class) |
| Jan 26 | Last Day to Drop 16 Week Class & NOT Receive “W” on Transcript |
| Mar 23–27 | Spring Break |
| Mar 31 | Last Day to Drop 16 Week Class & Receive “W” on Transcript |
| May 2 | Last Day of Classes |
| May 7 | Final Exam 12noon-2pm |

Withdrawal: An important decision in protecting your grade point average! Science courses are 4-5 credit hours and a poor grade can have a negative impact on your GPA. If you have questions about what to do as the Withdrawal date approaches, see me and we can discuss pros and cons considering your performance in the class.
Suggestions for Success:

1. **DO NOT miss class!** Two absences add up to 6 hours of missed information—and chemistry is NOT a subject you can read about and teach yourself!

2. **DO NOT arrive late!** Missed information will leave gaps in your knowledge. It is also disruptive to the instructor and other students who have arrived on time. Also, the instructor has the right to give pop quizzes if promptness is a problem.

3. **Start out ORGANIZED and STAY organized!** I suggest a 3-ring binder along with tabbed dividers by chapter or by exam. It takes about the same amount of time to get organized as it does to hunt for a paper in a messy stack.

4. **Make the MOST of your TIME!** “Studies have shown that about one half of what is presented in lecture is *not learned* if you wait more than 24 hours to study your lecture notes. If you wait a week, figure on about 35% retention. The same studies show that about 90% of the lecture material is retained if you review the lecture on the same day...It is a huge waste of study time to postpone learning from your lecture notes.”

5. **Be ACCOUNTABLE and find a STUDY PARTNER.** Work homework together and drill each other on information from lecture. Meet at least once or twice a week. Practice! Practice! Practice!

6. **Make FLASHCARDS.** Cut index cards in half (to cut the cost), punch holes in one corner and bind together using a metal ring. Put information on these that require memorization. Use them to drill each other in small groups or study partners. Save these for review for the final exam.

7. **Study with DETAILS in mind.** Chemistry is a high-detail science that requires a lot of attention and precision when it comes to studying. Approach problem-solving calculations from the perspective of learning to reason rather than memorization. Practice without using notes or text to prepare for the exams.

8. **Use the Learning Lab!** Free math/science tutors and a small group study atmosphere are available. Check for a schedule of tutors.

Test Taking Tips:

1. Confidence comes from being properly prepared—follow suggestions for success above.

2. Stamp out test anxiety by
   - A) being prepared (the more you know the less you fear)
   - B) stay focused on what you do know so your emotions can relax and your brain can remember.

3. Approach the test with a plan (Do what works for you!)
   - A) manage your time well
   - B) work portions you know best first
   - C) If you skip anything, mark it to come back to
   - D) *Never* leave anything blank
   - E) Exercise caution when “second-guessing” yourself
   - F) Check calculations if you have time left

Test Taking Policies:

1. **No one can leave the room once the exam starts** until their test is completed and turned in

2. PLEASE use the restroom BEFORE the exam.

3. Due to the nature of information that can be stored, passed or retrieved using cell phones and personal electronic devices, all cell phones, pagers, and other electronic devices must be turned off and put away. Cell phones cannot be answered during exams.

4. No one can start taking the exam late after another student has turned in the exam and left the room. (Don’t be late!)

5. No sharing of calculators (notify me if you forget yours OR if your calculator malfunctions)

6. Scratch paper will be provided and must be turned in with the exam. Scratch paper is NOT graded—show work on the exam!

7. Bring your calculator! No programmable calculators or other electronic devices can be used as calculators.

8. Bring any “accessories” you may need—like tissue, cough-drops, etc. if you have a cold.

9. All class materials MUST be put away completely out of sight during an exam.

Academic Honesty:

The highest standard of honesty is expected of all students! Cheating will NOT be tolerated! Appropriate disciplinary action will be taken. See [http://www.nwacc.edu/documents/NWACC2008-09Catalog.pdf](http://www.nwacc.edu/documents/NWACC2008-09Catalog.pdf) pages 158-159 for the Academic Honesty Policy and definitions of dishonesty.

You are expected to do your own work independently unless assigned specifically to a group project, usually a partner for lab experiments. You are still expected to turn in an independent lab report in your own handwriting for labs.

Disabilities Services:

If you are a student with disabilities who will be requesting accommodations, you should contact Amy Robertson-Gann at the Office of the DisAbility Services in the Student Center 225 (Phone 619-2660). Please let me know as soon as possible what accommodations are needed.

Disclaimer:

The Instructor reserves the right to make changes to the syllabus as needed. Attendance is necessary to stay well-informed as to any changes.

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<table>
<thead>
<tr>
<th>Week #</th>
<th>Tuesday</th>
<th>Thursday</th>
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<tbody>
<tr>
<td>1</td>
<td>Introduction/Syllabus/Home Assignment:</td>
<td>Lab Safety Video</td>
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<td></td>
<td>Read Ch. 1/ Lecture Ch. 2</td>
<td>Lab Safety Quiz/Lecture</td>
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<td></td>
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<td>Lecture Ch. 2</td>
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<td>Exp. Handout: Meas &amp; Sig Fig</td>
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<td>2</td>
<td>Lecture Ch. 2 and 3</td>
<td>Exp. 4 Densities of Liquids and Solids</td>
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<td>Lecture Ch. 3</td>
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<td>3</td>
<td>Lecture Ch. 4</td>
<td>Exp. 1 Prop/Changes in Matter</td>
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<td></td>
<td>Color Code Periodic Table</td>
<td>Lecture Ch. 5</td>
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<tr>
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<td>Exp. 4 Densities of Liquids and Solids</td>
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<tr>
<td>4</td>
<td>Exam 1 on Ch. 2-4</td>
<td>Lecture Ch. 5 and 6</td>
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<td>Exp. 1 Prop/Changes in Matter</td>
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<td>5</td>
<td>Lecture Ch. 6 and 7</td>
<td>Exp. 9 Names &amp; Formulas</td>
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<td></td>
<td>Exp. 9 Names &amp; Formulas</td>
<td>Lecture Ch. 7 and 8</td>
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<td>6</td>
<td>Exp. 9 Due today</td>
<td>Exp. 12 Types of Reactions</td>
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<td></td>
<td>Lecture Ch. 8</td>
<td>Lecture Ch. 8 and 9</td>
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<td>7</td>
<td>Exam 2 on Ch. 5-7</td>
<td>Exp. 7 %Oxygen in KClO_3</td>
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<td>Lecture Ch. 9</td>
<td>Lecture Ch. 9</td>
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<td>8</td>
<td>Lecture Ch. 9 and 10</td>
<td>Lecture Ch. 10</td>
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<td>9</td>
<td>Lecture Ch. 10 and 11</td>
<td>Exam 3 on Ch. 8-10</td>
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<td>Exp. 5 Simplest Formula of a Compound</td>
<td>Lecture Ch. 11</td>
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<td>Lecture Ch. 11</td>
<td>Lecture Ch. 12</td>
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<td>Exp. 11 Mole Ratio for a Chem Reaction</td>
<td>Exp. 15 Molecular Models</td>
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<td>11</td>
<td>Spring Break</td>
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<td>NO CLASSES</td>
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<td>12</td>
<td>Exp. 15 Molecular Models</td>
<td>Lecture Ch. 14 and 15</td>
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<td>Lecture Ch. 13 and 14</td>
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<td>Exam 4 on Ch. 11-14</td>
<td>Lecture Ch. 15</td>
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<td>Lecture Ch. 15</td>
<td>Exp pH Cabbage Juice</td>
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<td>14</td>
<td>Exp. 27 Meas of pH with Indicators</td>
<td>Lecture Ch. 18 and 19</td>
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<td>Lecture Ch. 19</td>
<td>Lecture Ch. 19</td>
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<td>Exp 31 Preparation of Aspirin</td>
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<td>16</td>
<td>Lecture Ch. 19</td>
<td>Exam 5 on Ch. 15, 17-19</td>
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<td>Review</td>
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<td>17</td>
<td>Finals Week – No Class</td>
<td>Final Exam 12:00noon</td>
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This Schedule is subject to change. Attendance is vital to being informed of those changes. **Final Exam will be Thurs May 7th!**

Make NOTE of this on your calendar!

Final Exam will be all multiple choice format. A “Scantron” form will be needed for the final exam.
Acknowledgment of Course Syllabus

Course:  Chem 1075 Fundamentals of Chemistry TuTh

Semester:  Spring 2009

CRN:  21988

Instructor:  Dr. Beverly Kelley

This is to acknowledge that I have access to a copy of the NWACC Course Syllabus for the course mentioned above
1) on the first day of class (hard copy) AND
2) electronically at NWACC.edu, Faculty Web Pages, Kelley, Beverly, Fundamentals of Chemistry.

Dr. Kelley reviews the syllabus on the First Day of Class to explain details and answer questions concerning the course.

I understand that if I miss that First Day of Class that it is still my responsibility to read the syllabus in order to be informed of the requirements for this course. I also understand that I must meet the requirements specified in the syllabus in order to successfully pass this course. I also acknowledge that remaining enrolled in this course is automatic acceptance of those course requirements.

Student Name (PRINTED)___________________________________________

Student Name (SIGNED)____________________________________________

Date ___________________________